**REMARKS**

Claim 1-20 are pending in the present application. Claims 21 and 22 have been added. No claims have been cancelled. Therefore, upon entry of the present Amendment, claims 1-22 will be pending.

The Examiner rejected claims 1-20 under 35 U.S.C. §103(a) as being unpatentable over Pirainen (US Patent 7031419 B2) in view of Richards et a1 (US Patent No 7079827 B2). Applicants traverse this rejection.

Consider the embodiment of the Applicants as illustrated in Figure 1. This figure shows a wireless communication system and highlights the channels through with communication is performed. The first is the "spatial channel", that is, the channel that exists through space, between the antennas. The second is the "complete channel", which is the spatial channel plus the hardware in both the transmitter and receiver. The channels degrade the fidelity of the transmitted signal. Without some measurement of the channel properties, it is impossible to decode most digital transmissions.

The ***spatial*** part of the channel is well known to be reciprocal. That is, should we transmit data backwards, from the receiver to the transmitter (which is possible if both are ***transceivers***), the spatial contribution to the channel transfer function is the same regardless of the direction of transmission. That is not true for the hardware portions of the ***complete*** channel, however. The hardware portions incorporate active circuitry and are distinctly unidirectional.

Notice that the receiver is the hardware that has the channel information. The transmitter, while participating in the measurement, does not know the measurement result and does not know information about the channel. Embodiments of Applicants are drawn to giving the transmitter knowledge of the channel. It is a calibration scheme that, once completed, allows transceiver to

create estimates of the ***complete*** transmit channel, including the contributions from the receive hardware at the other transceiver, based upon a channel estimate completed by the transceiver's local receiver.

Channel estimation is not considered in Pirainen. Indeed, Pirainen's ARQ coding scheme could be applied to systems that use differential signaling where no channel estimation is performed. Additionally, estimate, or estimation are not even present in the patent document. Pirainen is simply not concerned with any aspect of channel estimation.

Embodiments of the Applicants employ at least two channel estimates in a novel scheme to deduce the hardware effects of the *complete channel.* Data is transmitted in both directions to enable both transceivers to deduce the hardware effects. This is a new and novel scheme that can enhance the performance of many communication systems. Pirainen alone or in combination fails to teach or suggest this limitation..

Even though Applicants believe the unamended claims are novel, Applicants have amended claims to more particularly point out and distinctly claim the subject matter which the applicants regard as their invention.

In light of the above, it is respectfully submitted that the present application is in condition for allowance, and notice to that effect is respectfully requested.

While it is believed that the instant response places the application in condition for allowance, should the Examiner have any further comments or suggestions, it is respectfully requested that the Examiner contact the undersigned in order to expeditiously resolve any outstanding issues.

Respectfully submitted:

/Steven A. Shaw/

_____ January 18, 2007

Steven A. Shaw Date
Reg. No.: 39,368

Customer No.: 23494
TEXAS INSTRUMENTS INCORPORATED
P.O. Box 655474, MS 3999
Dallas, TX 75265
Telephone: (972) 917-5137
Facsimile: (972) 917-4418
email: steven-shaw@ti.com